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Introduction / Executive Summary

The Milestones and Deliverables for the Fourth Year and the previous three years of the NASA/Tennessee State University Network Resources and Training Site (NASA/TSU NRTS) have or will be accomplished by August 14, 1999 with one exception. The goal of a T3 (45 Mbps) connection for the campus was not reached. These lines were cost prohibitive. This is being replaced by Tennessee State University's participation in the development of the State of Tennessee ATM (or faster) System. This project is currently being bid. The network resources study and plans jointly developed by NASA/TSU NRTS in collaboration with the TSU Office of Information and Communication and the Network Support Services at Goddard Space Flight Center have resulted in the implementation of an ATM Backbone for Tennessee State University. Several of the original goals for this and previous years have been exceeded. Specific discussions of these accomplishments are as follows:

- Upgraded and additional application servers were placed at Lane College, LeMoyne-Owen College, Pearl Cohn High School, Kentucky State University and a 63-gig file server at Tennessee State University. Many of these were planned with NASA/TSU NRTS and fully or partially funded by the institutions. This is creating the independence and continuation proposed in the CAN.
- Tennessee State University has three rooms equipped for high speed distance learning and teleconferencing. Several classes and video conferences have been successfully conducted in these facilities.
- "Explorers of the Universe" was a NASA/TSU NRTS program this year. Seventeen High School students and four faculty members presented research findings at three national on one international conference. The "Explorers of the Universe," added to the NASA/TSU NRTS program on the urging of NASA, has expanded to include two additional projects that are affiliated with NASA Goddard Space Flight Center. These projects will include teachers and students who are part of MU-SPIN and NRTS. In these two projects grant requests through MURED Partnership Grants, will involve teachers and students in the "Explorers of the Universe" in the Mars Orbital Laser Altimeter (MOLA) and the Vegetation Canopy Lidar (VCL) Missions. A second grant request will involve like efforts with Landsat 7 and Terra. Students in the middle and secondary grades will be investigating self-directed cases relating to these two projects. The MOLA project has students mapping topography data received from the Mars Global Surveyor and developing analogies to their respective terrain locations. Stephanie Stockman, NASA Goddard Space Flight Center, will be the bridge between the middle, secondary students and their teachers with the scientists. She is also responsible for taking part in the development of study cases. Teachers and their students in middle and secondary schools affiliated with MU-SPIN and NRTS are being identified to participate in Explorers of the Universe Scientific/Literacy Project

- Dr. Geoffrey Burks and astronomy educator will join the NASA/TSU NRTS staff on June 1, 1999. This will further our efforts in the pursuit, of the Center of Excellence in astronomy education. This will allow for expansion of “Explorers of the Universe.”
- MAN connectivity to the Internet is in place at all sites. T1 lines are installed at all of the Colleges and Universities. The Metro Schools are all connected with at least one ISDN line and plans for expansion of the bandwidth as use indicates are in place. As a part the above mentioned “Explorers of the Universe” program, Hunters Lane High School was networked this fall and computers placed in the Physics lab.
- The LAN plans, as they existed for this year, have been implemented for the MSET departments at the NRTS campus and satellite sites.
- User Support and Network Operations Offices are functioning at the NRTS sites. The Universities have dedicated on site staff at all institutions. The elementary and secondary schools have limited on site staff, but a central support staff through the technical and library services group is available. All schools have direct phone support from the NASA/TSU NRTS Help desk. On site training has proven to be effective in making more of these sites’ self sufficient.
- Lane College received funding to upgrade the 24-station lab in the Math and Science Building Planning and designs were provided by NRTS. This lab, in the New Library building, is available many more hours than the other campus labs. The Lilly Foundation UNCF grant will be used to place computers on all faculty desks.
- LeMoyne-Owen College is using its UNCF Lilly Foundation grant to add 70+ computers for faculty and staff. This will create a 3.5 to 1 students to computers ratio at the College. The College is also adopting a nearby school as a partner through the Memphis Public Schools Community Involvement Program.
- Knoxville College with partnership assistance and funds from St. Mary’s Hospital and The Knoxville Utility Board (KUB) has rewired the campus electrical feeds. KUB provided the materials and installation at no cost to Knoxville College. St. Mary’s Hospital has provided planning and technical assistance and will provide computers when the above mentioned LAN network bid is completed.
- The Marshall Space Flight Center has been very helpful in analysis and planning for improvement of performance of the TSU Network. They are assisting in the study mentioned above and with advice on development of ATM systems on Campus.
- Tennessee State University Department of Computer Science has received a third Grant from Microsoft to install and test software. This \$70,000+ grant helped to leverage the cost and instillation of NT Networks in the Academic Computing facilities.

The funds for the NASA/TSU NRTS Project continue to be leveraged to a considerable degree. The continued funding of the Metropolitan Nashville/Davidson County Schools, the

work and funding at Knoxville College, Lane College, LeMoyne-Owen and the departments of Math, Biology, Chemistry, and Computer Science at TSU has totaled more than \$1.200,000. In addition the funds at Jackson State used in planning and development have resulted in a Leveraging in excess of \$6,000,000 toward engineering and installation of campus networking infrastructure and facilities. These will be completed by the fall of 1999. Other funding with leveraging efforts are still pending as of this date.